

RECEIVED
CENTRAL FAX CENTER

SEP 30 2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s) Name(s):
Clement J. JACQUAYS : Group Art Unit: 1755
Examiner: Marcantonio, Paul D.
Title of Invention: A Process for Treating Bauxite Tailings and Other Materials for Making Same
Serial Number: 10/617,729 :
Filed: July 2003

THE LISTING OF ALL CLAIMS EVER PRESENTED (37 CFR 1.121c)

Claim 1 (Cancelled).

Claim 1 (Original) A process for treating bauxite tailings to substantially neutralize a predetermined proportion of sodium hydroxide present therein, comprising:
pulverizing said bauxite tailings into a generally homogenous powder;
agitating said powder while adding sufficient water to form a generally free flowing slurry;
adding sufficient sulfuric acid to the slurry to neutralize said sodium hydroxide to a pH of about 5.5 to 6 to form water and an aqueous solution of sodium sulfate; and
separating said aqueous sodium sulfate solution from remaining insoluble slurry components; washing said slurry, while permitting a catalytically effective amount of sodium sulfate to remain with said insoluble slurry.

Claim 30: (v) The process of claim 29 wherein said homogenous powder is sufficiently fine to generally pass through a 16 mesh screen.

Claim 31: (vi) The process of claim 29 wherein said insoluble slurry from the treated bauxite tailings is further treated to form a component of building material.

Claim 32: (vii) The process of claim 31 wherein said building material is cementitious.

Claim 33: (viii) A product obtainable by the process of claim 29.

Claim 34: (ix) A process for treating bauxite tailings to substantially neutralize a portion of sodium hydroxide present therein, comprising:

 pulverizing said bauxite tailings into a generally homogenous powder which homogenous powder is sufficiently fine to generally pass through a 16 mesh screen; agitating said powder while adding sufficient water to form a generally free flowing slurry;

 agitating said slurry while adding sufficient sulfuric acid to the slurry to neutralize the sodium hydroxide to a pH of about 5.5 to 6 to form water and an aqueous solution containing sodium sulfate formed by said neutralization; and

 separating said aqueous sodium sulfate solution from remaining insoluble slurry by adding catalytically effective amounts of residual sodium sulfate without washing said insoluble slurry.

Claim 35: (x) The process of claim 34 wherein said insoluble slurry is further treated to form a component of a building material.

Claim 36: (xi) The process of claim 35 wherein said building material is cementitious.

7. (New) The process of claim 36 wherein said residual sodium sulfate remaining in
insoluble slurry catalyzes subsequent formation of carbonaceous crystals in said cementitious

8. (New) A product obtainable by the process of claim 34.

9. (New) A process for forming a cementitious material containing treated bauxite
comprising:

pulverizing said bauxite tailings into a generally homogenous powder
said homogenous powder is sufficiently fine to generally pass through a 16 mesh

agitating said powder while adding sufficient water to form a generally
slurry;

agitating said slurry while adding sufficient sulfuric acid to the slurry to
neutralize the sodium hydroxide present in the slurry to a pH of about 5.5 to 6 to form water and an
aqueous solution containing sodium sulfate formed by said neutralization;

separating said aqueous sodium sulfate solution from remaining insoluble
slurry containing catalytically effective amounts of residual sodium sulfate without washing said
slurry; and

combining said insoluble slurry in an amount of from about 5 to 50
percent by volume with a cementitious substance to form said cementitious material.

10. (New) The process of claim 39 wherein said cementitious substance is cement.

Claim 41. (New) The process of claim 39 wherein said insoluble slurry is combined with said cementitious substance, compacted and cured to form a brick.

Claim 42. (New) The process of claim 41 wherein said brick is cured in a super saturated humidity environment for a predetermined time period.

Claim 43. (New) The process of claim 42 wherein said time period is at least 168 hours.

Claim 44. (New) A product obtainable by the process of claim 39.



Donald A. Kettlestrings
Attorney for Applicant
Registration No. 24,573
414 Hungerford Drive, Suite 211
Rockville MD 20850
301-279-7577

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office. Fax No. (571) 273-8300 on 9/30/05

Donald A. Kettlestrings

